

What is claimed is:

1. An apparatus for tension-testing first and second curved specimens, comprising:
a first end member adapted to be coupled to first end portions of the first and second curved specimens;
5 a second end member adapted to be coupled to second end portions of the first and second curved specimens; and
an approximately rigid member disposed between the first and second end members and adapted to be disposed between the first and second curved specimens, the approximately rigid member having a pair of curved outer surfaces adapted to be engaged
10 against at least a portion of each of the first and second curved specimens between the first and second end portions thereof.

2. The apparatus of Claim 1, wherein the curved outer surfaces of the approximately rigid member include a layer of low-friction material.

3. The apparatus of Claim 1, wherein at least one of the first and second end members includes a pull member adapted to receive the applied test force.

4. The apparatus of Claim 1, wherein the approximately rigid member is a symmetrical member.

5. The apparatus of Claim 1, further comprising at least one strain gage adapted to be coupled to a surface of a corresponding at least one of the first and second curved specimens.

6. The apparatus of Claim 1, wherein the at least one strain gage includes at least one of a longitudinal and a transverse strain gage.

7. An assembly for tension-testing a pair of contoured specimens, comprising:
a first support member adapted to be coupled to first end portions of the contoured specimens;
30 a second support member adapted to be coupled to second end portions of the contoured specimens; and
an approximately rigid member disposed between the first and second support members and adapted to be disposed between the pair of contoured specimens, the




25315

PATENT TRADEMARK OFFICE

- 6 -

BING-1-1042APP

BLACK LOWE & GRAHAM ^{PLLC}


816 Second Avenue
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

approximately rigid member having a pair of contoured outer surfaces adapted to be closely engaged along at least a portion of each of the contoured specimens between the first and second end portions thereof when a test force is applied to pull the first and second support members in substantially opposite directions.

5

8. The assembly of Claim 7, wherein the contoured outer surfaces of the approximately rigid member include a layer of low-friction material.

9. The assembly of Claim 7, wherein at least one of the first and second support
10 members includes a pull member adapted to receive the applied test force.

10. The assembly of Claim 7, wherein the approximately rigid member is a symmetrical member.

11. The assembly of Claim 7, further comprising at least one strain gage adapted to be
15 coupled to a surface of a corresponding at least one of the contoured specimens.

12. The assembly of Claim 11, wherein the at least one strain gage includes at least one
of a longitudinal and a transverse strain gage.

20

13. A method of simultaneously tension-testing a pair of curved specimens,
comprising:

coupling a first end member to first end portions of the pair of curved specimens;
coupling a second end member to second end portions of the pair of curved

25

specimens;

disposing an at least approximately rigid member between the first and second
end members and between the pair of curved specimens;

applying a test force that moves the first and second end members apart; and

simultaneously with applying the test force, at least partially engaging the pair of

30

curved specimens against a pair of curved outer surfaces of the at least approximately rigid
member.

14. The method of Claim 13, at least partially engaging the pair of curved specimens
against a pair of curved outer surfaces includes at least partially engaging the pair of curved
35 specimens against a layer of low-friction material on the outer surfaces.




25315

PATENT TRADEMARK OFFICE

- 7 -

BING-1-1042APP

BLACK LOWE & GRAHAM ^{PLLC}


816 Second Avenue
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

15. The method of Claim 13, wherein coupling a first end member includes coupling a first end member having a pull member adapted to receive the applied test force.

5 16. The method of Claim 13, wherein disposing an at least approximately rigid member between the first and second end members includes disposing a symmetrical rigid member between the first and second end members.

10 17. The method of Claim 13, further comprising measuring an axial strain in at least one of the first and second curved specimens.

18. The method of Claim 13, further comprising measuring a transverse strain in at least one of the first and second curved specimens.

15